

# The instructor and the educator . . . are they really synonymous?

Donald A. Emery  
N. C. State University

Mr. Emery is Professor in Charge of Crop Science Teaching at N. C. State University, Raleigh, N. C.

Several years ago I gave an examination in a senior course in plant breeding which happened to be scheduled immediately following an extensive discussion of mutations. One question pertained to the origin of an abnormal plant in a farmer's field. I was disappointed but not particularly surprised to note that the majority of the students ignored their farm experience, their background in weed science, their courses in soil fertility and even other facets of plant breeding in answering the question. The recent discussion dealt with mutation. The course was plant breeding. Would a plant breeding instructor deliberately ask a question that could implicate herbicides? Of course he would. Does the extension specialist look for mutations because his last course at "State" was in plant breeding? Does the medical doctor diagnose a case of Scarlet Fever because his last patient had a sore throat?

Education, says Stuart Johnson<sup>1</sup>, is "the knowledge of how to use the whole of one's self." When I, as a college instructor in plant breeding, fail to relate mutation breeding to organic chemistry, when I exclude plant physiology from my discussions of heterosis, or when I forget to tie John Smith's interest in anthropology to the evolution of crop plants, I fail in some small way to educate.

The professor's opportunities to educate are not limited to the classroom, however. The ideal college according to some educators is first concerned with making persons out of people<sup>2</sup>. We might add that to accomplish this goal it is helpful for students to make persons out of professors. I once prepared a collection of letters from outstanding agriculturists and biologists to complement an appreciation course in Crop Science. I had asked these scientists to furnish us with a biographical sketch and any words of wisdom they might offer the undergraduate student who aspired to be a plant biologist. I was amazed to find that the majority of these distinguished professors did not emphasize course work as the major contributor to their success. On the contrary, the influence of one or two key individuals were credited for their early inspiration.

It is of particular interest to follow the "personal pedigree" of these scientists. Professor Coit Suneson, for example, wrote in 1964 "I was drawn to agronomy (at Montana State College) out of respect . . . (as a teacher and a man) for the Head of the Department Clyde McKee." In 1966 the Crop Science Award of the American Society of Agronomy was presented to Professor Suneson at the annual meeting held in Stillwater, Oklahoma. The award was made by Dr. Paul H. Harvey, Head of the Crop Science Department at North Carolina State University. Dr. Harvey had, as an undergraduate student, been motivated in agronomy by Professor Suneson. The chain of professor-student-professor goes on over generations. Personal

relationships are also part of one's education and they serve as a continuum of inspiration and motivation.

Finally, the good teacher must seriously consider a key word in the working definition we have presented for education. To educate we must encourage the student to use all of his attributes. We must motivate the student into constructive activity beyond the classroom.

If I have been successful in developing a good personal relationship with the student I am by now aware that he did not come to my classroom with a mind which is a "blank slate to be written upon."<sup>3</sup> The student has developed some image of himself and of his career long before he has the rare privilege of attending my lectures. Unfortunately, his image of his life's work is somewhat like the image of a bachelor's wife. It is wonderful but undescribable. It is my responsibility to aid the student in bringing this "lovely face" into focus without undue distortion resulting from my own prejudices. It would be tragic indeed, if I succeeded in broadening the student's perspectives by challenging his imagination in a wide assortment of undergraduate experiences only to limit his view of occupations to the "keyhole" of my specialty area.

Are instructors and educators synonymous? The answer must be personal for each of us who attempt to teach. I have asked myself the following questions. Perhaps you would like to share them.

1. When John came to me last fall with a specific problem dealing with peanut maturation I instructed him to see his County Agent. John will be an extension leader himself next month. Did I promote the education process by my instruction?

2. Harvey is having a difficult time passing my course. I have had Harvey in other courses and he does not respond well to my teaching methods. He must be a little lazy I figure. Last week I attended a student program in which Harvey participated. I was truly amazed to find that Harvey has a beautiful tenor voice and that he sings regularly with the college choir and instructs a church choir. Have I been instructing a student when I should have been educating a person?

It seems to me that we who teach in Agricultural Institutions have been particularly guilty of instructing ends when we should have been educating means for man to live in society. As a consequence I fear that many graduates leave our ranks well instructed in black and white when they must live and work in a world of gray.

<sup>1</sup>J. Stuart Johnson, The Mark of an Educated Man, Phi Kappa Phi Journal, pp. 32-38, Fall 1968.

<sup>2</sup>Curtis R. Hungerford, My Ideal College, Improving College and University Teaching, pp. 221-224, Autumn 1968.

<sup>3</sup>Sam M. Fleming, The Spector of Ignorance, Phi Kappa Phi Journal, pp. 9-16, Winter 1969.

## Teaching Today's Agricultural Student

Thadis W. Box  
Texas Tech

Dr. Box is professor of Range Management and Director of the International Center for Arid and Semi-Arid Land Studies at Texas Technological College. He is currently in Australia on a leave associated with the Danforth Foundation's E. Harris Harbison Award for Distinguished Teaching. He was selected a Harbison Professor in 1966 becoming the first teacher in agriculture or biological science to receive the award.

Agricultural education in America has been the most successful in the world and I maintain that this success has largely been due to an early dedication to immediate, real, and pressing problems. Its success in the future will depend on the ability of individual professors to relate to the problems of an ever changing environment and involve their students in

solving them. The agricultural professor must teach his students in the context of changing world needs.

The average American university student is the best prepared for higher education of any in history. Enriched curricula in primary and secondary schools have given him the basic tools of mathematics and science unsurpassed in the past. Modern communication techniques have made him aware of the tensions and problems of the world around him at a time when he is struggling to find his position in life. As a result, he is keenly aware of the inadequacies of the American university and is questioning all he contacts.

Today's university students are very much concerned with the "here and now" world. More than ever before they are asking why. Why is there world hunger? Why must there be war? Why must we have slums? Why is it wrong for a boy and a girl in love to share a dormitory room if they pay the rent and take the pill? Today's student is becoming less concerned with what and more concerned with why, and most institutions are still either unable or unwilling to enter into the free inquiry and discussion of the why of the modern world.

It is because the whys largely go unanswered, that student unrest exists on so many of our campuses. Students are now asking that we professors justify what we teach. Often they are immature in their efforts and sometimes outright ridiculous in their demands, but they have identified a basic weakness in the university. For the most part, neither courses, curricula, nor research projects are relevant to the real needs of the modern world. Academics have been content to study the effects of change rather than to design programs that will affect the quality of that change. Neither students nor faculty members have been adequately involved in real world problems. Faculties are caught up in the "publish or perish" syndrome, occupied with turning out sophisticated publications based on research into isoteric problems. Students are required to memorize facts and parrot them back for examinations. The result of all this is that many students become frustrated and manage to get themselves involved in the world in a very negative way, organizing demonstrations and fighting the establishment. They do this mainly because the university has not provided creative and constructive avenues for involvement. If this situation is to be changed for the better it must be done by the individual professors who comprise the teaching staff of the university. Certainly the administration should provide funds, facilities, and a stimulating academic environment and students should be receptive to learning; but, whether or not ideal conditions are available, the professor still has the responsibility to teach.

Student riots have been rare on agricultural campuses, but unrest springs up even there when the student realizes he is not getting his money's worth from his courses. Unless agricultural professors really do a good job of teaching, more unrest can be expected.

The professor of agriculture seldom has ideal conditions. In the first place, his average student does not fit the description of the university student described above. Many are the products of rural school systems that have not adopted new, enriched curricula and that have not been able to attract and hold superior teachers. As a result, many agricultural students, although of equal ability to others in the university, start their university program with inadequate backgrounds in mathematics, science, and basic communications. In addition, agricultural students tend to be provincial in their outlook and pragmatic in their approach. They lack the idealistic drive of their fellow students in the humanities and seem more concerned with "making a living" than reforming the world. It is significant that few students from agriculture join the Peace Corps or other voluntary services. All too often, agriculture projects proposed by the Peace Corps, IVC, or other voluntary organizations end up being staffed by English or Art majors simply because agriculture students are not available. It is not at all uncommon for the best biological scientists on the campus to be found in agricultural departments but they may

be regarded as inferior by administration and colleagues because they are associated with "applied" sciences. Of course this does not alter the fact that many agricultural teachers deserve their reputation of being hayseeds teaching "how-to-chop-cotton" courses, but on the average, there is no more dead-wood on agricultural faculties than on others in the university.

For one thing, agricultural education's image may be suffering from too much success. The fact that only 6-8% of the American people can feed the remainder has greatly reduced the number of people actually involved in agricultural production. Americans spend less than 17% of their income for food — the lowest percentage in the world — but rarely relate this admirable situation to the success of the agricultural college.

Indeed, few people realize the extent to which the agricultural college has influenced higher education in America. The unique feature that separates American higher education from that of Europe and the rest of the world is the old land grant college concept of combining teaching, research, and public service into a single, viable mission for the university.

This concept set the pattern which all of American higher education has followed. It involved the university in two of the most pressing, real-world problems of the last century — development of the country and mass education. The emphasis on mass education has literally flooded our colleges and universities with students. Today there are almost six million university students pursuing several hundred majors and specializations — and it is predicted that the number of students will double by 1985. At least 60,000 of today's students are enrolled in agricultural programs of some sort, with the result that there will be more and better educated people in agriculture than ever before. It is almost as common in America to find university trained farmers as university trained teachers, scientists and businessmen. Unfortunately, the average professor is poorly prepared for college teaching. He usually receives a baccalaureate degree in a specialized subject, and then proceeds to become more narrow and specialized in his subject at the master's and doctorate level. His success in graduate school and his competitive ability to get a university teaching position is due almost entirely to his ability to do research on a narrow topic. He comes to his first teaching position with the latest techniques in his field, but if he is aware of how his subject relates to world need, it is in spite of his training. He may be well qualified to teach technical competence in his chosen field, but he is rarely qualified to educate leaders or help them to identify the problems facing mankind, or to inspiring students to effect changes necessary in the socio-economic structure of the world.

I am not advocating "how-to-teach" courses for university teachers. Teaching techniques are not nearly so important as what is taught. I believe that the only real requirements for a good teacher are a thorough knowledge of his subject and a love of people. Any teacher who has both attributes will succeed. If either is lacking, the man is in the wrong profession. The teacher who really knows his subject must also know the world conditions relating to his field, and if he loves people, he will want to see his subject applied to alleviate human need. His students become involved, not only in the subject matter of the course, but in the world around them.

If one accepts my thesis that the success of agricultural education in the United States is due to active involvement in general problems, then it is imperative that we anticipate, identify and attack major problems if our success is to continue. Good teaching becomes more knowing what to teach than how to present the material, how to write meaningful exams, and how to evaluate student work. Any subject worth listing in the university catalog has far more facts, formulae, and figures that can be presented in the time allowed. It is up to the teacher to synthesize these facts into

meaningful principles and make the principles relevant to situations significant to the student.

A recent communication from Dr. Raold Peterson, FAO headquarters, has suggested that present American Agricultural programs do not meet the needs for an international scientist. He suggests that through better conceptualization and more emphasis on human factors we can actually turn out a better product in less time. He may well be correct, because we have tended to "revise" programs in the past by adding new material rather than working for better conceptualization of the basic principles and making those principles meaningful.

One objective of education is to broaden the perspectives of students. Such broadening is especially needed with agricultural students, and no subject is more basically related to world problems. With the human population near the three and one half billion mark and growing rapidly, no agricultural subject is complete without reference to the demographic change. A situation in which large grain crops grow in America, Australia, and Europe while people starve in less developed countries obviously requires the study of distribution systems and balance of payments; but it requires as well the consideration of social, economic, and political institutions. A minority of 8%, even though they feed the remainder of our country, cannot ignore problems of unemployment, urban blight, environment pollution, and industrial strife. American agriculture must be taught from the standpoint of a minority occupation with a disproportionately high impact on the country as a whole.

The agricultural teacher should not expect his students to get a proper perspective on agriculture and its relation to world hunger from a nutrition course, nor should he expect a course in economic theory to explain how grain production affects balance of payments. Neither should he have to teach such subject matter in a course in crop physiology, but unless through his conferences, discussions, assignments, and seminars students are brought to relate their agricultural work with problems facing mankind, the professor is not teaching and the whole process of education deteriorates into a training program for highly skilled technicians.

Teaching in agriculture involves far more than merely the presentation of facts and evaluation of the students ability to regurgitate them on demand. The teachers' responsibility consists of four main objectives:

1. Creating an awareness of world problems and needs in the student. With the advancement of communications, transport, and global intercourse there are few actions that do not have world-wide implications. Certainly local and regional problems exist, but their ultimate solution will be achieved only in relationship to broader international goals.
2. Developing scientific competence in the student in a chosen profession. Far too often this is viewed as the major goal in education. In reality, this phase of the educational process only supplies the tools necessary for a specific skill.

3. Leading the student to relate the skills of his profession to the needs of society. Regardless of the amount of technical knowhow a student may achieve, he is simply a trained technician and not an educated individual unless he can visualize his skills in relation to human need.
4. Fostering the desire to apply the skills required to the solution of problems. The teacher must lead the student to relate his own personal goals to the broader world situation.

Once a student is made aware of the needs of society, is given the tools and skills of a profession, relates his profession to solving specific needs, and sets his own personal goals in the context of what is needed and what he can do about them, then he can be considered an educated man. The teacher, or teachers, who guide him through the process of awakening, discovery, and implementation cannot rely on a single technique or formula for teaching. The world situation is constantly changing, and each student is an individual with a unique combination of background, motivation, goals, and ability. The confrontation of the individual student with the challenge of a dynamic system of human needs and possible solutions is the exciting role of the university professor. He is usually poorly equipped for the task and there can be no handbook of rules for him to follow. It matters little whether he uses lectures, discussions, or tutorials; whether visual aids are used or not; whether he teaches in a modern lecture hall or a World War II surplus quonset. It is the professor's ability to recognize individuals and communicate with each person as an individual that will bring the student to the realization of his own potential.

The education of people in Agriculture in the United States has been tremendously successful because it related itself to real world problems. Today's teacher must constantly search his own soul to be certain he knows what the real world is. Is the real world one of stock judging, crop grading, and preserving the family farm as a way of life? Or is the real world made up of starving people with different religions, political affiliations and colors of skin living in an overpopulated, polluted environment? If the teacher misjudges the real world, the world and his students will suffer. The teacher of agricultural students must bring the individual student face to face with the ever-changing patterns of human existence, and point each individual toward the portion of the dynamic process that he can best handle with his training and ability.

A main cause for disturbances on today's campuses is the lack of relevance of what is being taught to what is needed in the world. Granted, some of the solutions offered by students are no more relevant than present programs, but this does not relieve the individual professor of the responsibility of assuring that his courses have meaning. Theoretically he should be much more able to relate his subject matter to the needs of society than his students. If he does not, it is he, not his students, who is to blame for the time wasted under the guise of the educational process. He simply is not teaching and should not attempt to fill the shoes of a professor.

## Some Thoughts on Teaching Introductory Courses

Edmund R. Barmettler  
University of Nevada

Mr. Barmettler is Professor of Agricultural Economics, Division of Agricultural Economics and Education, Max C. Fleischmann College of Agriculture, University of Nevada, Reno, Nevada.

I can say without reservation that for me teaching has been consistently the most rewarding activity of my professional career. *Teaching* as I conceive it, is more than the usual operation of a classroom environment designed to transmit knowledge and develop understandings. It involves a concept wherein the classroom serves as the point of origin for experiences that extend into the real world of work. To me it is essential that this connection or identification be made for effective teaching. There is nothing fancy about this idea –

teacher educators have always maintained that realism is more effective than pretense and doing is, from the teachers' and learners' point-of-view, more efficient than any other teaching method. As a teacher, I am interested in the things that will improve my ability to break through the various barriers that resist change in the student, including limited student aptitude, student experiences, and levels of student motivation. I am also interested in those things a good teacher does to make himself competitively more effective in bidding for the student's interest. As far as I am concerned, I want always to treat the opportunity of teaching as a privilege ultimately granted to me not by the administrative authority, but rather by the learner.